CALIFORNIA REGIONAL WATER QUALITY CONTROL BOARD
SAN FRANCISCO BAY REGION

ORDER NO. 90-146
SITE CLEANUP REQUIREMENTS

CHEVRON U.S.A., INCORPORATED
PLANT 1 / ADDITIVES PLANT
RICHMOND REFINERY
RICHMOND PARKWAY RIGHT-OF-WAY
CONTRA COSTA COUNTY

The California Regional Water Quality Control Board, San Francisco Bay Region, hereinafter called the Board, finds that:

1. Chevron U.S.A., hereinafter called the Discharger, owns two parcels of property located along the southeastern corner of Chevron's Richmond Refinery along Castro Street in west Richmond, Contra Costa County, California (Figure 1). The parcels were formerly the sites of Chevron Chemical Company's Plant 1 and Chevron U.S.A.'s Additives Plant facilities identified as County Assessor's Parcels 561-390-001 and 561-390-003, respectively.

2. The Additives Plant/Plant 1 sites lie along the proposed Richmond Parkway Right-of-Way, a four lane boulevard proposed by the California Department of Transportation (Caltrans) which will provide a link between Interstates 580 and 80. Caltrans' design includes construction of a railroad overpass where Castro Street presently intersects Southern Pacific and Santa Fe railroad tracks near Chevron Refinery's Gate 31 (Figure 2). Fill for the southern approach of the overpass is to be placed on the northwest corner of the Additive Plant and the central portion of Plant 1.

3. The former Additives Plant manufactured petroleum and heavy metal based gasoline additives from 1930 to 1970. The buildings were dismantled and removed in 1982, after which the site was covered with gravel and asphalt. An above ground tank farm was located in the northwest portion of the Additives Plant.

4. Chevron Chemical Company, owned and operated Plant 1 as a pesticide solutions and formulating and packaging facility from 1930 to 1970. Prior to 1930, Plant 1 was owned by the California Spray Chemical Corporation, which produced pesticides. All buildings were subsequently dismantled and removed by Chevron Chemical Company in 1970. The manufacturing building was located in the northwest portion of the property. In the northeast portion was a drum storage farm, tetraethylprophosphate (TEPP) building, pesticide incinerator, garage and several 20,000 gallon oil storage tanks.

5. The Additive Plant/Plant 1 sites have extensive lead and pesticide contaminated soils, some at hazardous concentrations. Contamination in the area occurs in the fill materials designated as the "A" Zone.

6. Most of the soil contamination in the Additives Plant and Plant 1 occurs in the surficial fill which overlies Bay Mud. In general, the fill ranges from 2 to 8.5 feet thick and is underlain by a 3 to 6 foot thick layer of Bay Mud. Underlying the Bay Mud are alternating sequences of alluvial and estuarine deposits of considerable thickness ("C" Zone). The uppermost alluvial soils extend from the base of the Bay Mud for about 30 feet consisting largely of a silty clay matrix, although there are sporadic sand lenses in this material. The contaminated surficial fill has been designated as the "A" Zone (hydrostratigraphic unit).

7. The fill is highly contaminated, with some areas at hazardous levels. Constituents of concern at Plant 1 include lead, DDD, DDE, DDT, Chlordane, Aldrin, Dieldrin, Endrin, benzene, chlorobenzene, xylene, and Total Petroleum Hydrocarbons (TPH). Ground water has been impacted.

8. The bulk of contamination occurs in the western half of the site and in the surficial fill. The concentration ranges for the constituents in soils that exceed hazardous concentrations are as follows:

Soil Contaminant	Range of Total Concentrations	Hazardous Concentrations Title 22
Lead	52 - 4400 mg/kg	(1000 ug/kg)
DDD	10 - 300,000 ug/kg	(1000 ug/kg)
DDE	10 - 220,000 ug/kg	(1000 ug/kg)
DDT	10 - 430,000 ug/kg	(1000 ug/kg)
Chlordane	12 - 220,000 ug/kg	(2500 ug/kg)
Aldrin	270 - 48,000 ug/kg	(1400 ug/kg)
Dieldrin	10 - 41,000 ug/kg	(8000 ug/kg)
Endrin	14 - 4,400 ug/kg	(200 ug/kg)

The soil contamination of DDD and DDT in some areas extends into the Bay Mud below the fill. The range of TPH contaminant concentration in soil is 40 to 37,000 mg/kg.

9. Maximum concentrations reported for constituents in ground water from the October 1989 sampling that exceeded California Drinking Water Standards and maximum concentrations for TPH in ground water are as follows:

Water Contaminant	Max. Concentration	Calif. MCL*
DDD	250 ug/l (STLC = 100 ug/l)	100 ug/l
Benzene	1100 ug/l	1 ug/l
Chlorobenzene	1800 ug/l	30 ug/l
TPH	120,000 ug/l	-

*
Maximum Contaminant Level

10. In order to prepare the site for the forthcoming construction of the Richmond Parkway and to remediate the site in satisfaction of RWQCB requirements, the discharger is proposing: 1) installation of an "A" zone trench extraction system (Figure 2) keyed into the underlying Bay Mud, 2) placement of clean structural and grading fill over the Plant 1 site in order to provide protection for roadway construction workers and to prepare for construction of the Richmond Parkway overpass, 3) placement of a geotextile and asphalt cap over the Plant 1/Additives Plant sites following completion of the overpass and, 4) construction of an "A" zone and underlying "C" zone monitoring well system.

11. The discharger is liable for all reasonable costs incurred by the State Water Resources Control Board and this Board in the activities related to clean up, abatement or remedial action at the site undertaken pursuant to this Order.

12. The Board adopted a revised Water Quality Control Plan for the San Francisco Bay Basin (Basin Plan) on December 17, 1986 and amended it on August 19, 1987, and July 18, 1989. This Order implements the water quality objectives for San Pablo Bay as stated in the Basin Plan.

13. The beneficial uses of San Pablo Bay in the vicinity of the site are:

    a. Industrial Service Supply
    b. Navigation
    c. Contact and Non-contact Water Recreation
    d. Ocean Commercial and Sport Fishing
    e. Wildlife Habitat
    f. Preservation of Rare and Endangered Species
    g. Fish Migration and Spawning
    h. Shellfish Harvesting
    i. Estuarine Habitat

14. The potential beneficial uses of groundwater underlying the site (deeper than 100 feet) are:

    a. Industrial Process Water and Service Supply
    b. Agricultural Supply
    c. Municipal and Domestic Supply

The shallow ground water above 100 feet depth is discharged into adjacent wetlands and the Bay.

15. This action is an order to enforce the laws and regulations administered by the Regional Board. This action categorically exempt from the provisions of the CEQA pursuant to Section 15231 of the Resources Agency Guidelines.

16. The Board has notified the discharger and interested agencies and persons of its intent under California Water Code Section 13304 to prescribe Site Cleanup Requirements for the discharge and has provided them with an opportunity to submit their written views and recommendations.

17. The Board, in a public meeting, heard and considered all comments pertaining to the discharge.

IT IS HEREBY ORDERED, pursuant to Section 13304 of the California Water Code, that the discharger shall cleanup and abate the effects described in the above findings as follows:

A. Prohibitions

1. The discharge of wastes or hazardous materials in a manner which will degrade water quality or adversely affect the beneficial uses of the waters of the State is prohibited.

2. Further migration of pollutants through subsurface transport to waters of the State is prohibited.

3. Activities associated with subsurface investigation, cleanup or road construction which will cause adverse migration of pollutants are prohibited.

4. The discharge of any excavated or recovered waste constituents from the contaminated soils, into ground waters or surface waters is prohibited.

B. Specifications

1. The storage, handling, treatment, or disposal of soil or ground water containing pollutants shall not create a nuisance as defined in Section 13050(m) of the California Water Code.

2. The discharger shall conduct remedial activities as follows:

   a. Complete the proposed extraction system as approved by the Executive Officer.

b. Provide the proposed clean structural and grading fill for the Plant 1 area as originally proposed.

c. Install the geotextile and asphalt cap over the Plant 1/Additives Plant sites upon completion of the Parkway overpass.

d. Install the proposed monitoring wells for the "A" and "C" hydrostratigraphic zones as approved by the Executive Officer.

3. After completion of the aforementioned activities the discharger shall conduct monitoring activities to verify the effectiveness of ground water treatment, containment and/or closure systems.

C. Provisions

1. The discharger shall, in a timely manner, submit status reports and technical reports to Board staff as required in these Provisions. The discharger may be assessed monetary penalties for late or incomplete reports required by these provisions.

2. The discharger shall reimburse the State Water Resources Control Board and this Board for all reasonable costs incurred by the State Water Resources Control Board and this Board in the activities related to clean up, abatement or remedial action at the site undertaken pursuant to this Order.

3. Submission of a status report documenting progress and completion of the necessary tasks related to the Plant 1/ Additives Plant Remedial work and road construction activities. The reports shall be according to the following schedule:

FIRST PROGRESS REPORT DUE: No later than April 15, 1991

SECOND PROGRESS REPORT DUE: No later than July 15, 1991

THIRD PROGRESS REPORT DUE: No later than October 15, 1991

FOURTH PROGRESS REPORT DUE: No later than January 15, 1992

FIFTH PROGRESS REPORT DUE: No later than April 15, 1992

SIXTH PROGRESS REPORT DUE: No later than July 15, 1992

ADDITIONAL PROGRESS REPORTS DUE:	Quarterly until construction completion of the Richmond Parkway Additives Plant/Plant 1 Sector
FINAL PROGRESS REPORT DUE:	Within 90 days of construction completion of the Richmond Parkway Additives Plant/Plant 1 Sector

4. For the status reports submitted by the discharger, in compliance with the Prohibitions, Specifications, and Provisions of this Order, shall be submitted to the Board on the schedules specified. The status reports shall be in a business letter format that includes the following:

   a. A summary of work completed since submittal of the previous report and work projected to be completed by the time of the next report;

   b. Identification of any obstacles which may threaten compliance with the schedule of this Order and what actions are being taken to overcome these obstacles;

   c. In the event of non-compliance with any Prohibition, Specification, or Provision of this Order, written notification which clarifies the reasons for non-compliance and which proposes specific measures and a schedule to achieve compliance. This written notification shall identify work not completed that was projected for completion, and shall identify the impact on non-compliance on achieving compliance with the remaining requirements of this Order.

5. Submission of a proposed Self Monitoring Program (SMP). The SMP shall indicate the locations of any newly proposed monitoring wells as well as those existing which will comprise the monitoring system.

   In the first self-monitoring report, an evaluation of the current ground water monitoring system and a proposal for modifications should be included.

   Pursuant to California Water Code Section 13267 the discharger shall establish and maintain a well and surface discharge monitoring program which shall be acceptable to the Executive Officer, to detect any releases of contaminants in ground and surface waters, and to verify the efficacy of any treatment

methodology, contaminant removal, and containment or closure systems utilized at the site.

COMPLETION DATE: No later than May 13, 1991

6. Submission of a report documenting completion of construction, closure, and remedial operations with as-built details.

   COMPLETION DATE: No later than January 1, 1993 or within 90 days of construction completion at the site.

7. The discharger shall maintain a copy of this order so as to be available at all times to project operating personnel.

8. All submittals of hydrogeological plans, specifications, reports, and documents (except the status reports and the Self-Monitoring Program Proposal and subsequent self-monitoring reports), shall be signed by and stamped with the seal of a registered geologist, registered engineering geologist, or registered professional engineer.

9. All samples shall be analyzed by state certified laboratories using approved EPA methods for the type of analysis to be performed. All laboratories shall maintain quality assurance/quality control records for Board review.

10. The discharger shall maintain in good working order, and operate as efficiently as possible, any facility or control system installed to achieve compliance with the requirements of this Order.

11. Copies of all correspondence, reports, and documents pertaining to compliance with the Prohibitions, Specifications, and Provisions of this Order, submitted by the discharger, shall also be provided to the following agencies:

    a. Richmond Public Works Department
    b. Contra Costa Health Department
    c. State Department of Health Services

12. The discharger shall permit the Board or its authorized representative, in accordance with Section 13267 (c) of the California Water Code, the following;

    a. Entry upon the premises in which any pollution sources exist, or may potentially exist, or in which any required records are kept, which are relevant to this Order;

b. Access to copy and to view records required to be kept under the terms and conditions of this Order;

c. Inspection of any monitoring equipment or methodology implemented in response to this Order; and

d. Sampling of any ground water or soil which is accessible, or may become accessible, as part of any investigation or remedial action program undertaken by the discharger.

13. The discharger shall remove and relocate properly any wastes which are discharged at this site in violation of these requirements.

14. The discharger shall file with this Board a report of any material change or proposed change in the character, location, or quantity of this waste discharge. For the purpose of these requirements, this includes any proposed change in the boundaries, contours, or ownership of the disposal areas.

15. The Board considers the property owner and site operator to have a continuing responsibility for correcting any problems within their reasonable control which arise in the future as a result of this waste discharge or contaminated water removed or applied to this property during subsequent use of the land for other purposes.

16. These requirements do not authorize the commission of any act causing injury to the property of another or of the public, do not convey any property rights, do not remove liability under federal, state or local laws, and do not authorize the discharge of waste without the appropriate federal, state, or local laws, and do not authorize the discharge of waste without the appropriate federal, state, or local permits, authorizations, or determinations.

17. Pursuant to, or unless otherwise stated in, the requirements of California Water Code Sections 13271 and 13272, if any hazardous substance is discharged in or on any waters of the state, or discharged or deposited, or probably will be discharged in or on any waters of the State, the discharger shall report such discharge to the following:

a. The Regional Water Quality Control Board, San Francisco Bay Region at (415) 464 - 1255 on weekdays during office hours from 8 a.m. to 5 p.m.; and

b. The Office of Emergency Services at (800) 852 - 7550.

A written report shall be filed with the Regional Board within five working days of discharge event or when the event is discovered and shall contain information relative to the following:

1) The nature of the waste or pollutant;

2) The quantity involved and the duration of incident;

3) The cause of the spill;

4) The estimated size of the affected area;

5) The corrective measures that have been taken or planned, and a schedule of these measures; and

6) The persons/agencies notified.

18. The Board will review the Order periodically and may revise the requirements when necessary.

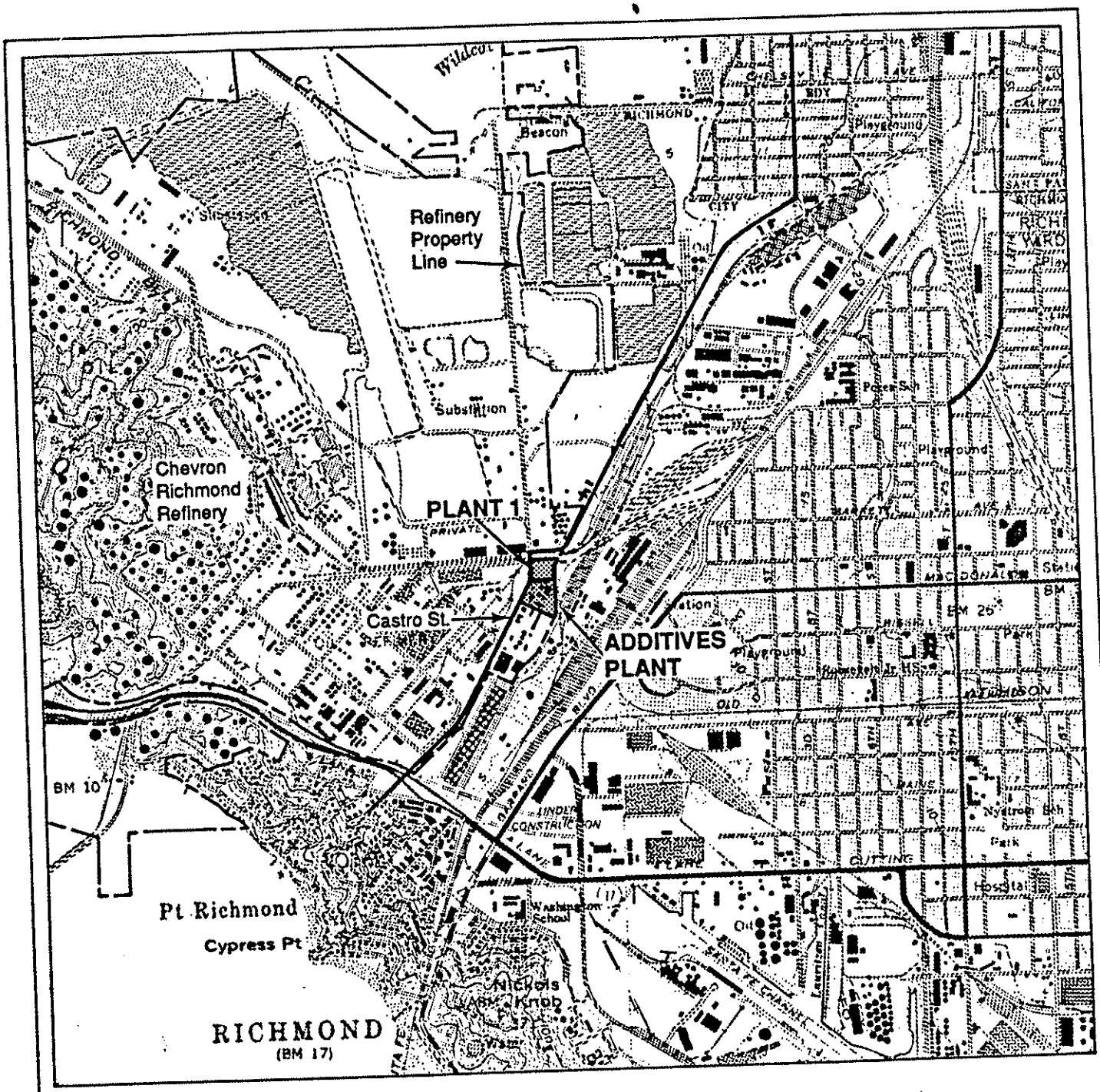
19. If the discharger is delayed, interrupted, or prevented from meeting one or more of the completion dates specified in this Order, the discharger shall promptly notify the Executive Officer and the Board shall consider revision of this Order.

I, Steven R. Ritchie, Executive Officer, do hereby certify the foregoing is a full, true, and correct copy of an Order adopted by the California Regional Water Quality Control Board, San Francisco Bay Region on November 14, 1990.

STEVEN R. RITCHIE
Executive Officer

Attachments

Figure 1: Location map
Figure 2: Contaminated Area and Proposed "A" Zone Extraction Trench

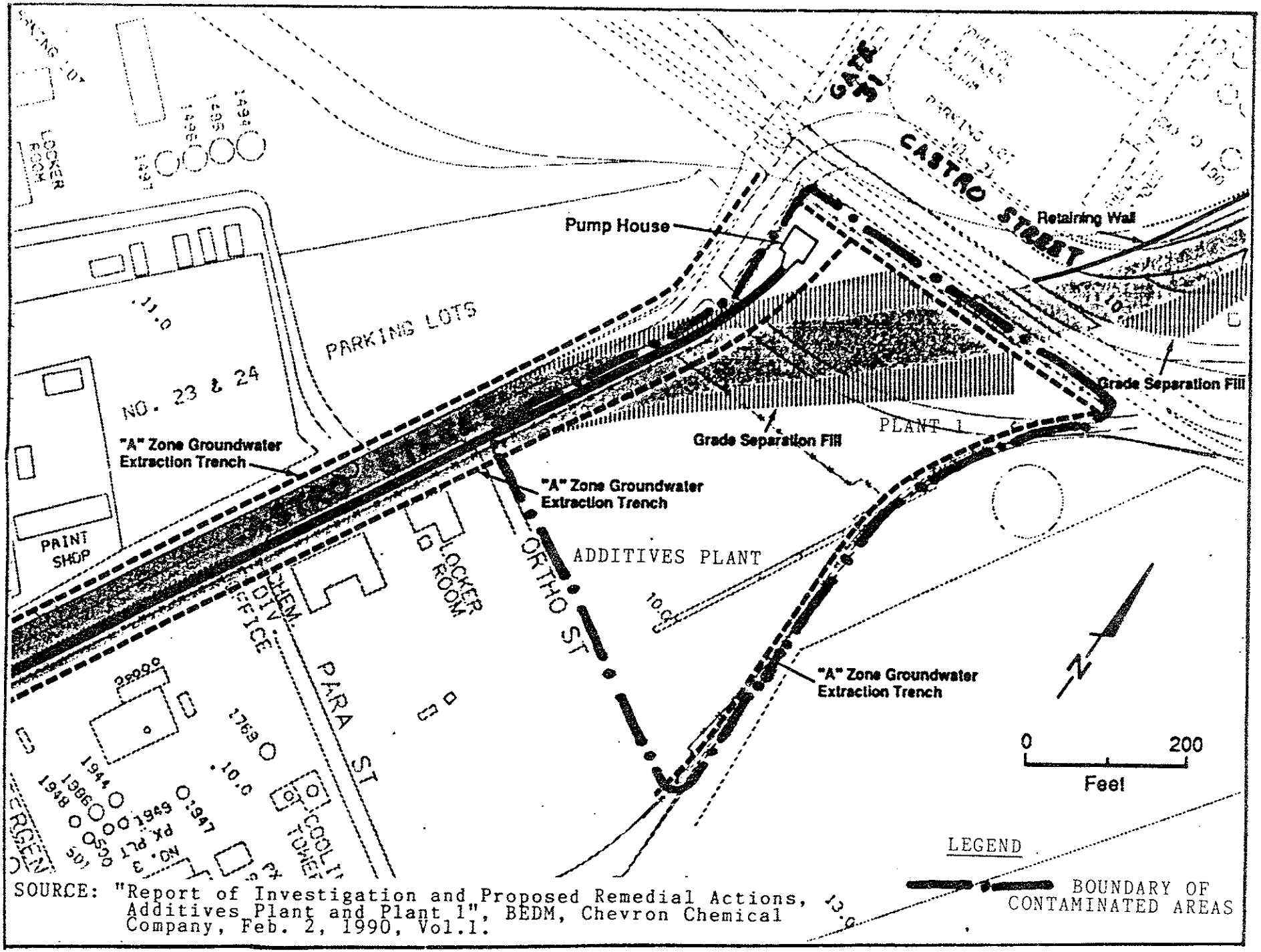


SOURCE: "Report of Investigation and Proposed Remedial Actions, Additives Plant and Plant 1", BEDM, Chevron Chemical Company, Feb. 2, 1990, Vol. 1.

19000-272-114	Chevron U.S.A., Inc.	**LOCATION MAP**
BEDM	ADDITIVES PLANT/PLANT 1 Richmond Refinery, California	

PLATE 1-1

FIGURE 1



SOURCE: "Report of Investigation and Proposed Remedial Actions, Additives Plant and Plant 1", BEDM, Chevron Chemical Company, Feb. 2, 1990, Vol.1.

FIGURE 2

CONTAMINATED AREA AND PROPOSED "A" ZONE EXTRACTION TRENCH